The
VETERINARY RECORD
Founded by William Hunting, F.R.C.V.S., in 1888
7, MANSFIELD STREET, PORTLAND PLACE, LONDON, W.1. MUSEUM 6541

No. 37 SEPTEMBER 15th, 1956 Vol. 68

Registered for Transmission as a Newspaper *Price 2s. post free*

The Annual Report

MEMBERS of the Association will have read, by now, the Report for the year 1955-6, which was printed in the Congress Handbook, circulated a short time ago. Though it forms but a summary of all the work done by the Association as such, and by the standing committees, its content is sufficient to attest both the vitality of the organisation and the enormous amount of detail work undertaken for the benefit of members, and for the profession as a whole. There were, as the Report states, five meetings of the Council, and no fewer than 57 meetings of committees and sub-committees.

No aspect of the profession's work and interests wanted for attention. Subjects as diverse as the clinical trials of therapeutic substances for veterinary use, slaughterhouses, the use of antibiotics in animal feeding stuffs, local veterinary inspectors' fees, representation on Parliamentary and other committees, negotiation with animal welfare societies, the examination of animals proposed for insurance, developments in research, and the progress of this journal, all received their due consideration, as did very many others.

It would be difficult to compute the hours of thought, discussion and administrative time given to all these matters. Every member of the Association owes a debt of gratitude to those who have given themselves so freely in the profession's service.

Most of all is acknowledgment due to the Association's Officers who have borne such a burden of responsibility. In these difficult days it is onerous indeed for busy clinicians, senior members of the Ministry's staff, and teachers, to find time not merely to attend meetings, but to undertake the multitudinous tasks to which the meetings give rise. To be elected to office in the British Veterinary Association, honour as it is, calls for substantial sacrifices, even material sacrifices, on the part of those so elected, and members rightly count themselves fortunate in those who serve them with so much conscientiousness and ability.

It may be hoped that all the work done, not for the Association alone, but for the whole profession, will impress itself upon veterinary surgeons outside our membership. The year under review did, indeed, show a gratifying increase in our numbers—in point of fact a record increase—but even so it is a matter for regret that among the readers of this journal, for example, more than 20 per cent. do not belong to the B.V.A. The comparatively small size of the profession would seem to make it especially important that we should be able to exert a united influence, and to speak in professional matters with one voice.

One passage in the Annual Report refers to the Association's liaison with other bodies, and we look forward to welcoming their representatives to this year's Congress. With equal cordiality we look forward to the attendance of overseas colleagues from the United States, Australia, New Zealand, the Union of South Africa, Eire, Denmark, Ceylon and elsewhere. Veterinary science is international, and so, ideally, is the control of disease, and circumstances may make it possible, at some future Congress, for veterinarians to visit us from the Soviet Union, or from China where, as is recorded, professional examinations were held 2,000 years before the dawn of the Christian era.

The Report to which these observations refer will be presented to members at the Annual General Meeting next Wednesday. On the following Saturday the new President will be installed, and a new year will begin. May it be a successful and rewarding one.

Royal Leamington Spa

Leamington, where the famous 900-year-old Midland Oak marks the centre of England, is a happy choice for the Association's 74th Congress. Itself a pleasant, well-laid-out spa, it stands in a countryside rich in historical and literary association. Warwick Castle, only a short distance away, goes back to the 14th century, the present building standing upon a site where Alfred the Great's daughter Ethelflida built a fortress in 915. It is one of the few baronial castles still used as a residence. Kenilworth Castle, ancient stronghold of the de Montforts, lies to the north, not far from Stoneleigh Park where the Cistercian monks built their abbey in the 12th century. To the south of the town is Offchurch, once the seat of King Offa, while away to the west and south Stratford-on-Avon offers its treasures.

Nor does the Shakesperian association stand alone; for this is the countryside of George Eliot, and Ruskin, and only a little farther north, of Arnold Bennett and D. H. Lawrence.

The surrounding countryside is of considerable natural beauty, while not far away are the enchanting Cotswold villages of Broadway, Bourton-on-the-Water, Moreton-in-Marsh, and others. Nearer still, the beautiful old town of Warwick holds endless fascination for aesthete and antiquarian alike.

The town of Leamington, referred to in the Domesday Book as "Lamintone," was associated in the Middle Ages with the Priors of Kenilworth; and it was a monk, John Rous, who recorded in the late 15th century the existence of the saline springs which have since made the town famous. It was not, however, until 1786 that the first healing baths were established by William Abbotts, whose pioneering work was brought to fruition by the celebrated Dr. Jephson, who attracted the cream of London society to sample the benefits of the waters.

The title "Royal" was bestowed by Queen Victoria in 1838, though the charter of incorporation was not obtained until nearly 40 years later. Once the value of the saline springs was recognised the growth of the town was steady and continuous. Standing on either bank of the Leam, with the old town occupying the site of the ancient hamlet to the south, Royal Leamington Spa is as pleasant and attractive an inland resort as one could wish to find.

A view of the Town Hall where most of the Congress Sessions are to be held

HOSTS TO CONGRESS

Each year Congress is indebted to one of the Divisions of the Association for acting as host to the delegates. A great deal of work, and not a little expense, is involved, and everyone who attends the annual gathering is under an obligation to those who have done so much to organise it. This year two Divisions are jointly acting as hosts, and readers will be interested in the following historical note. It is hoped to publish a note on the East Midlands Division next week.

The Midland Counties Veterinary Association is one of the oldest veterinary associations in the country. It began its life in Derby in 1866 and was then the 10th such association to come into being. Many of its predecessors have disappeared and, indeed, the records show that it came very near to dissolution itself in 1873. Only the energy of one or two enthusiasts kept it going and gave rise to a renewal of interest so that in 1890 it had 100 members. Since then, its membership has never dropped below that figure and at the present time it stands at 143. The great majority of members are drawn from the counties of Shropshire, Staffordshire, Worcestershire, and Warwickshire.

Reference to past Minute books shows that the Division has been actively associated with every major event in veterinary history. To take an example, in 1896 the reigning President, Mr. F. L. Gooch, of Stamford, claims to have initiated the idea of a Central Association. The idea was taken up by Professor Macqueen and elaborated, and when the Division was asked for its views, a committee was set up within the association to study the proposal. Complete agreement was reached on the need for a national body made up by the affiliation of the various existing associations. Various recommendations were made, some of which hold good to this day.

The Division appears to have been the first to give its approval to the formation of the N.V.M.A. in 1909.

The Midland Counties cannot, however, claim to have been always right, as witness its reaction to a letter from William Hunting in 1881. Hunting was seeking support for a new publication which he proposed to call a "Weekly Record." Members turned the proposal down, and it is interesting to note that the cost would have been 6d. per week for each member.

An account of the "Midland Counties" would not be complete without a reference to the most outstanding figures in the Division's history, namely its secretaries. First, H. J. Dawes, who took up the reins 69 years ago, and later, H. W. Dawes, who took over where his father left off. The secretaryship remained in the Dawes family for over 50 years, a period during which the association reached its peak, and a history of service which must be almost unique.

Despite the Division's intimate association with the early history of the B.V.A. it is curious to note that very few Congresses have been held within its territory. Indeed, the last was held 51 years ago, at Buxton in 1905.

In Brief

BOVINE MASTITIS

A METHOD for the control of chronic mastitis due to *Str. agalactiae* has been prepared by the Technical Development Committee of the Agricultural Research Council (1955). It is based on work conducted mainly in this country and in Denmark and the principles recommended are the results of the experience of several workers. In the main, they consist in the detection of infected cows and their treatment with two doses of 100,000 units of penicillin. But, to supplement the application of therapy, it is recommended that disinfectants should be added to water used for washing the cows' teats and milkers' hands at milking time since these sites constitute important reservoirs of infection extraneous to the udder. The benefits derived from such disinfection have been pointed out by Hughes (1953) while the additional advantage of avoiding hand stripping in the successful eradication of infection has been shown by Menzies (1953). The need for an improved disinfectant over the commonly employed hypochlorite and quaternary ammonium compounds has led Wilson (1955) to investigate the value of Hibitane which possesses bactericidal action against most organisms. In five herds with a history of persistent infection, it was possible by using a daily wash to prevent spread from infected to clean cows and eventually to eliminate infection.

In a survey of the wastage due to disease in dairy herds in two counties reported by Withers (1955), the annual incidence of mastitis was found to be about 7 per cent. and it is interesting to note that its occurrence rises sharply with advancing age, and that one-third of the cases occurred at calving; this finding might reflect the importance of staphylococci as a cause of clinical disease since this organism usually produces disturbance at calving. In so far as treatment of the affection is concerned, no antibiotic with therapeutic activity greater than that of penicillin has yet been found and the success attending treatment has usually been greater in early cases—a finding confirmed recently by Barnes (1955) who investigated the value of terramycin. The question of resistance to antibiotics in staphylococci has been the subject of conflicting opinion. Wilson (1954) noted an increase in the incidence of resistant strains whereas Alford, *et al.* (1955) found that the majority of strains were sensitive to both penicillin and aureomycin and that resistance to antibiotics was not created by repeated treatment.

S. J. EDWARDS (Oct. 1955).

References

ALFORD, J. A., LUSI, H., & MCCRORY, H. F. (1955). *J. Amer. Vet. Med. Ass.* **126.** 294.

BARNES, L. E. (1955). *Amer. J. Vet. Res.* **16.** 386.

HUGHES, D. L. (1953). *Vet. Rec.* **65.** 1.

MENZIES, D. W. (1953). *N.A.A.S. Rec. No.*, **20.** 329.

REPORT TECH. COMMITTEE A.R.C. (1955). *Vet. Rec.* **67.** 410.

WILSON, C. D. (1954). *Ibid.* **66.** 775.

———. (1953). *Ibid.* **67.** 645.

WITHERS, F. W. (1955). *Ibid.* 605.

Persistent Hymen in the Mare

BY
A. S. HARRIS
Barnard Castle

THE subject was an 11-year-old grey hunter mare which " broke down " on both flexor tendons of the off fore, in the hunting field late in the 1953-4 season. The owner decided to breed from her, as there was little hope of her hunting again.

She was tried several times with the stallion during the summer of 1954, but would not accept service, and became somewhat vicious each time.

In September, 1954, I was asked by the owner to examine the mare as he thought she might not be normal. On examination *per vagina* I found a persistent hymen, somewhat similar to that found in the typical " white heifer disease " of cattle, except that this hymen appeared to be rather thinner and more flexible than that usually palpated in the other species. In the centre was an aperture which would admit only three fingers. The mare very definitely resisted any attempt to dilate the opening.

As I had never come across, or indeed heard of, such a case in the mare, I wrote to Mr. W. C. Miller of the Animal Health Trust at Newmarket. He informed me that such cases had been reported occasionally and were of two distinct varieties, either a muscular constriction which would probably eventually respond to manual dilatation, or a true hymen which might respond to surgery. As the condition in this mare was definitely of the latter type, I decided to operate.

The Operation

In January, 1955, the mare was cast, and anaesthetised with chloroform. I made four incisions in the hymen from the aperture in the centre to the periphery at the vaginal wall, using a small hooked obstetric knife. Several handfuls of sulphonilamide were then put into the vagina. No further treatment was carried out. Mr. Miller had suggested that douching with acriflavine solution might be carried out daily for a few days after the operation, but I decided against this as this mare was difficult to handle from behind, and became upset by such restraint as would have made douching possible.

She was served without trouble on May 7th, 1955, and foaled to this service on April 22nd, 1956.

Acknowledgment.—I should like to express my thanks to Mr. Miller for his advice.

A NEW INFORMATION SERVICE

The Council of the Association of Agriculture has decided to take further steps to bring home the essential contribution which this industry makes to the national well-being. In order to reach the widest public it proposes to disseminate information on agriculture both to children and to the adult urban population. This information service will be complementary to the educational work of the Association, which will continue to develop side-by-side with the new activity.

Surgical Treatment of Labial Ulcer in the Dog

BY
JOAN M. WILSON
Hatfield

THE labial groove, a vertical fold in the lower lip and adjacent part of the muzzle, running from the region of the lower canine tooth over the lateral ramus of the lower jaw, is most noticeable in heavily jowled dogs. It frequently forms a site of chronic ulceration. The overflow of saliva from the mouth inundates the groove; the path of the saliva is frequently aided by the upper canine tooth impinging upon the proximal end of the groove. The continually saturated skin undergoes partial digestion from salivary enzymes and an extremely foetid odour results. Secondary infection usually occurs in the devitalised tissue. This characteristic foetid smell is often the first indication of the condition to the owner and is so typical that diagnosis can frequently be made as the dog enters the consulting room. Whilst secondary infection can be controlled therapeutically, the condition will relapse when treatment is discontinued. Radical removal of the fold has invariably proved successful.

The animal is anaesthetised and placed in lateral recumbency. Manual pressure at the commissure draws the lower lip backwards, flattening out the groove and exposing the ulcer. Hair on the site is clipped and the area cleaned. An elliptical incision is made parallel to the ramus of the jaw, the upper limit of the incision being at the junction of skin and lip, the lower limit being sufficient to excise the ulcer and obliterate the groove. The skin forming the lower edge is then brought upwards and stitched to the lip, forming a line of interrupted sutures parallel to the ramus. No dressing is required. Stitches may be removed in seven to eight days.

Attention should be paid to the upper canine tooth; if the tooth impinges on the lower lip, the tip may be removed by saw. Should gingivitis and receding gum be present it is advisable to remove the tooth.

NO EASY WAY OUT

Miners at a pit in Northumberland recently came out on strike against a pit pony who failed, according to them, to work hard enough. It is hardly necessary to say that this led to animal lovers all over the country offering the pony a comfortable home with nothing to do. The Coal Board, however, are inflexible. " Jet " is not for sale and is to be denied this easy way out. In any case, the Board officials, unlike the miners, say that he is " a good pony," though for the sake of peaceful labour relations "Jet" is to be taken off coal hauling and given another job. With this assurance the miners have returned to work.

Current Literature

ABSTRACTS

The Use of the Ophthalmoscope in Veterinary Practice. BUNCE, D. F. M. (1955). *Vet. Med.* **50.** 599-604.

The author, by means of a series of diagrams, illustrates the principle on which the electric ophthalmoscope works, and discusses the method of approach to the examination of the ocular fundus of the dog. In general terms the optic disc, retinal vessels, and tapetum are described. Changes which occur in pathological conditions involving the posterior segment of the eye are also dealt with. These include retinal and vitreous haemorrhages, glaucoma, detachment of the retina and retinal atrophy.

A Surgical Correction of Glaucoma in the Dog. SCHWARTZMAN, R. M. (1956). *J. Amer. Vet. Med. Assoc.* **128.** 18-20.

The operation of iridencleisis—frequently performed in man for the relief of glaucoma—was practised on a six-year-old Cocker Spaniel with an intraocular pressure of 84 mm. of mercury in one eye with apparent success. The day before operation, under light general anaesthesia, a retro-bulbar injection of 1.5 ml. of 2 per cent. procaine reduced the intraocular pressure to 13 mm., 7 mm. lower than the normal eye. Following nembutal anaesthesia and surface anaesthesia to the globe, the eyeball was secured in position by means of stay sutures. To control congestion and bleeding epinephrine solution was injected subconjunctivally. A conjunctival flap extending from 10 to 12 (?2) o'clock and 5 mm. from the limbus was reflected over the cornea. The sclera was incised from 11 to 1 o'clock approximately 1 mm. from the limbus, entering the anterior chamber immediately in front of the iris. A knuckle of iris was withdrawn through the incision with iris forceps and split with scissors from its pupillary margin to its root. The free ends were left in the incision to act as drainage wicks and the conjunctival flap replaced and sutured in position with fine silk. Postoperative treatment consisted of systemic penicillin and 1 per cent. atropine solution in the eye twice daily. Sutures were removed after seven days with the discharge of the patient. The only complication was some haemorrhage into the anterior chamber which cleared in two weeks.

C. F.

Chemotherapy of Canine Cancers with M.E.P.A. MCCOY, J. R. *et al.* (1956). *Amer. J. Vet. Res.* **17.** 90-97.

The substance used was N-(3-oxapentamethylene)-N, N-diethylenephosphoramide, referred to as M.E.P.A., which, in common with some other phosphoramides, is reported to reduce the rate of growth and cause regression of tumours. The administration of M.E.P.A. required careful adjustment because excessive doses affected the production of leucocytes, and induced a leucopenia. The tolerance of the dog to M.E.P.A. was increased by feeding a diet rich in casein, or by supplementing the diet with methionine and glycocyamine. These compounds have been found to be of value in conditions where there is a marked depletion of protein.

The M.E.P.A. was administered by mouth in doses of 2 mg. per kg. bodyweight, three times a week. This treatment was found to be effective in causing a regression in six out of seven cases of malignant lymphomata, all of which were in an advanced stage. Histologically, the regressed lymph glands were found to have recovered their normal structure although there was evidence of foci of potential neoplastic tissue. The results with a number of other forms of cancer were disappointing.

D. W. J.

Use of Radioactive Cobalt in Treating Ocular Carcinoma in Cattle. BANKS, W. C. (1956). *N. Amer. Vet.* **37.** 114-18.

This preliminary report recorded the use of radioactive cobalt in 10 cattle and 2 horses. All the animals were affected by squamous cell carcinoma of the eye region that had been confirmed by biopsy.

The author reviews the methods used to treat malignant tumours by radiation therapy with special reference to the implantation of cobalt seeds. The cobalt has a half-life of 5.26 years so that the radiation effects are prolonged and the implantations must be secure. The radioactive cobalt can be obtained either incorporated into needles or nylon thread. The former is a safer method for on occasion nylon thread has become brittle after insertion into a tumour. Breakage of the thread either leaves the radioactive cobalt in the tumour or scatters it in the stall.

Nine of the cases have been followed up and in all cases except one horse the results have been satisfactory. The author claims that the use of cobalt needles is as effective as other types of radiation and has a better cosmetic result than surgery.

F. R. B.

Studies on Ketosis in Dairy Cattle (XVII & XVIII). GESSERT, R. A., SHAW, J. C., & CHUNG, A. C. (1955). *J. Amer. Vet. Med. Assoc.* **127.** 215-19.

A trial was carried out on 37 cows with ketosis to determine the relative value of hydrocortisone, hydrocortisone acetate, and a combination of the two, in treating the condition. Hydrocortisone was far more effective than hydrocortisone acetate (and appreciably more potent than cortisone acetate). A combination of hydrocortisone and hydrocortisone acetate appeared to be as effective, and perhaps more effective, than hydrocortisone alone.

The effects of the drugs on blood glucose are given and the dosages used by intramuscular injection were 0.5 to 1.5 grammes.

Another trial on 28 cows using 11-ketoprogesterone (ketogestin) 1 to 5 grammes intramuscularly, gave a result which indicated that this substance was somewhat less satisfactory even than cortisone acetate.

C. M. E.

A Disease of Cattle in Britain Resembling the Virus Diarrhoea-Mucosal Disease Complex

BY

C. DOW, W. F. H. JARRETT and W. I. M. McINTYRE

University of Glasgow Veterinary School

Introduction

SINCE 1952 we have encountered, on 35 farms, a syndrome characterised by ulceration of the mouth and of the alimentary tract. There did not appear to be any account of the disease in the literature and its aetiology was unknown, names applied to it by practitioners being "malignant catarrh," "dirty mouth" and "acorn poisoning." Detailed examinations of several herds were undertaken and it was then realised that the morbidity was much higher than had been thought previously, many animals being mildly affected with the disease; examination of the mouths of unselected cattle at a knackery revealed that the disease was not uncommon in the general population. Transmission experiments were undertaken and it was found that the cause was a filter passing infective agent, probably a virus.

The condition bears many resemblances to a group of diseases recently described in America as the mucosal diseases or virus diarrhoeas. In this publication the characteristics of the syndrome in its field and experimental forms are described, and compared to, and contrasted with, the American diseases and bovine malignant catarrh.

As the disease produces a wide variety of clinical signs and epidemiological features, a composite description of the disease based on the 35 outbreaks, is given; brief accounts of the findings on four individual farms are also presented.

Incidence

There was no seasonal incidence, cases being seen at all times of the year. The ages of affected cattle ranged from three weeks to seven years. While most cases were females, four were bulls and eight bullocks. The majority were of the Ayrshire breed, but a few were Friesians and Shorthorn crosses. On the farms which were investigated thoroughly the morbidity was found to be high in each age group, 40 to 70 per cent. of the cattle being affected, while on others the incidence appeared to be much lower; this might be accounted for by the fact that in many instances we were consulted only about isolated cases in the chronic phase of the disease possibly some time after the acute and relatively mild stage had passed.

While no accurate survey has been done on the overall incidence of the disease in the country, many cases have been seen at local knackeries and the veterinary surgeons of this area are becoming increasingly familiar with it.

Clinical Signs

Three main types of syndrome have been encountered and these may be called mild, acute, severe acute and chronic.

(1) *Mild Acute*

These cases were found occurring in the same herd as the more easily diagnosed chronic cases, and the animals showed only a markedly elevated rectal temperature of 104° to 106° F., a considerable drop in milk yield, and, in some cases, diarrhoea of a few days' duration. Buccal ulceration was present in some of these cows but regular examination was not made to see if it occurred in them all (see Farm 1 below).

(2) *Severe Acute*

Up to the present this has been seen only in calves. These died after an acute febrile illness said by the farmer to last only one day. However, ulceration of the lips was seen in two apparently healthy calves, one of which died two and the other four days later (see Farm 2 below).

(3) *Chronic*

This is the syndrome about which we have been most frequently consulted, and we think it possible that it is shown by only a small percentage of affected animals in a herd and that the acute phase may have occurred several weeks earlier (see Farms 1, 3 and 4 below).

The lesion common to all cases was ulceration of the mouth. The sites of ulceration were usually multiple but in order of frequency were (1) inner surface of both lips (Fig. 1); (2) gums and dental pad; (3) hard palate (Fig. 2); (4) just posterior to lower incisor teeth; (5) the papillated area of the cheeks, and (6) the tongue. The first sign of the developing lesion is a small congested area on the lips or gums about 1 cm. long by 3 to 5 mm. wide. Vesicle formation then takes place, the upper layer of the epithelium being very easily ruptured, leaving a shallow ulcer with a red base and a fairly regular outline. The ulcers are usually orientated transversely in the mouth. Normally they remain shallow, only the superficial layers of the epithelium being involved, and healing takes place within about 14 days. At this stage the ulcer crater is a small slit surrounded by a slightly raised and firm white areola. Many animals show ulceration for as long as two months, and this is produced by the development of succeeding waves of ulcers. Usually the ulcers are discreet although they may coalesce, especially on the hard palate, to form large eroded areas; infrequently, secondary infection takes place, and from these more flagrant lesions *Fusiformis necrophorus* and *Corynebacterium pyogenes* have been isolated.

Lesions were also seen on the muzzle and on the skin of the nostrils. Although a mild degree of nasal mucous discharge occurred in a few cases, repeated examinations of the nasal mucosa and turbinates failed to reveal any lesion more severe than slight congestion.

In several cases small cutaneous nodules could be palpated all over the body; these consisted of a mixture

of squamous cells and serous exudate and in no case was the continuity of the skin breached.

Another common site was the interdigital cleft (Fig. 3). The lesion varied from a raised rough and reddened patch at the anterior end of the cleft, to papule formation and to marked ulceration of the skin with under-running of the horn. Several cows were seen in which the coronary band was markedly thickened ; these animals showed chronic lameness and pain on handling.

A variable degree of enlargement of lymph nodes regional to ulcerated areas was noted, but this was not a constant finding.

Persistent and often copious diarrhoea similar to that of Johne's disease was often the most serious sign in the well-established case, and this appeared to play the most important part in the debility of the animal. Ruminal movements were often poor but never ceased, even in advanced cases. Extensive ulceration of the floor of the rectum was found clinically in one case.

As a result of alimentary tract lesions (see below) and diarrhoea, appetite and fluid intake were often inhibited and this led to a marked fall in bodyweight. A pyrexia of 104° F. was recorded in an occasional animal but usually temperatures were normal. No significant alteration in pulse rate was noticed until dehydration became marked.

In two outbreaks there was a history of concurrent abortion. On one outbreak 10 cows aborted between the third and the sixth months of pregnancy, and on the other four heifers and two cows aborted at about the seventh month.

The Course of the Disease

This varied greatly. The shortest was observed in a calf which died 24 hours after it had appeared normal. This case was proven by experimental transmission. The " mild acute " cases were usually ill for only three to four days before complete recovery ensued. The majority of severe cases lasted only for a few weeks during which time diarrhoea became marked ; others remained alive for several months and were finally destroyed because of their persistently poor condition ; some of those which recovered were noticeably thin for six months afterwards.

Post-mortem Findings

All cases showed buccal ulceration as described under Clinical Signs (above). The next most common site was the oesophagus ; the ulcers were similar to those in the mouth, occurred at all parts of the organ, but were most often found in the thoracic part over the base of the heart. In 75 per cent. of the fatal cases ulceration of the rumen was present ; this varied from multiple small superficial erosions to large ulcers of 3 inches diameter and, in some cases, areas of distortion where healing had occurred. Like the buccal lesions, these affected largely the superficial layers of the squamous epithelium only.

Ulceration of the abomasum was common ; in some cases there were multiple pinhead haemorrhagic erosions over the fundus and pylorus, while in others the ulcers were of the acute peptic type and were up to 3 cm. in diameter ; the most severe lesion recorded was the shedding almost of the whole abomasal mucosa.

In the cases dying after prolonged diarrhoea, enteritis was a constant finding ; the degree ranged from irregular superficial ulceration occurring every 6 or 7 inches along the small intestine, to intense congestion with desquamation of the necrotic mucous membrane (Fig. 4). This process appeared to start in the Peyer's patches.

Primary lesions were not found in the lower respiratory tract although in two cases oesophageal ulcers had perforated to the tracheal lumina with the consequent production of acute necrotising broncho-pneumonia.

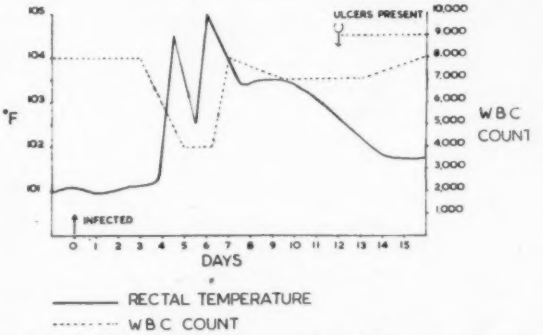
The histological findings in the alimentary tract and viscera will be reported in detail in a subsequent publication.

Treatment

All the common antibiotics have been used, none with success. Fluid replacement with isotonic saline was found to be the most useful palliative treatment.

The Experimental Disease

At present the disease has been artificially transmitted to 31 calves ranging in age from two weeks to six months. Initially the infections were produced by injecting, intraperitoneally (I.P.) suspensions of spleen from a field case which died after a typical illness lasting two months. A 5 per cent. weight/volume saline suspension was made by grinding the spleen in a sterile mortar and centrifuging for five minutes at 2,500 r.p.m. ; 500 units of penicillin and 500 mg. of streptomycin per ml. were added to the supernatant. Fifty ml. were given to each of four calves intraperitoneally and all contracted the disease. A typical response is shown by graph



Graph showing temperature reaction, total leucocyte counts and development of ulceration in a calf injected with splenic suspension.

consisting of the development of leucopaenia, fever and buccal ulceration. Rectal temperatures were taken four times daily, and at the height of the response 25 ml. of blood were taken from each calf and injected into two other calves. All calves were maintained in individual isolation units. Bacteriological examination (aerobic and anaerobic cultures) of the blood at the time of passage was negative. The calves developed the typical disease. Four serial passages have been carried out in this way. The inoculum at each stage has been bacteriologically sterile.

The spleen from which this passage was initiated was stored at −40° C. for eight weeks. Twenty-five ml. of suspension similar to that described above was injected intraperitoneally into each of six calves. All showed a typical response.

The time after infection that leucopaenia, fever and ulceration developed in 12 calves which were inoculated with this strain is illustrated in Table I. These calves were not available for autopsy so that the visceral distribution of lesions is unknown. Details of the haematological findings will be reported later.

TABLE I
THE RESPONSE OF 12 CALVES INFECTED WITH SPLENIC SUSPENSIONS

Case number	Day of which :		
	Temperature reaction occurred	Leucopoenia present	Ulcers developed
1	0	0	19
2	3	3	4
3	4	3	13
4	5	5	12
5	6	4	16
6	4	0	7
7	4	2	16
8	5	4	15
9	5	4	12
10	8	4	20
11	4	9	6
12	7	6	20

Similar passages have been made from a cow which died after showing a high fever and marked buccal and alimentary ulceration, from a calf of four weeks old which died after an acute illness of only a few days and showed buccal and abomasal ulceration, and from a bull which was shot after an illness of about eight weeks. The spleen of the latter was removed aseptically and suspensions made from it were bacteriologically sterile. A 2 per cent. suspension of spleen was made by macerating and suspending in Hartly's broth. This was centrifuged at 2,500 r.p.m. for five minutes and alternately frozen and thawed twice at -20° and 37° C. respectively. The clarified supernatant was divided ; one portion was passed through a gradocol membrane of A.P.D. 720 m.u. and the other through a Seitz E.K. filter. Two calves were injected intraperitoneally with 20 ml. of the latter, and one with 20 ml. of the former. They were maintained individually in isolation boxes with strict disinfectionary precautions applied to feeding utensils and attendants' clothing. A typical response was obtained. In those given Seitz filtrate, temperature reactions occurred at six days p.i. reaching a height of 104·8° F. on the eighth day in one case, and 105·7° F. on the ninth day in the second case ; buccal ulceration occurred on the seventh day in both calves. The animal injected with the Gradocol filtrate had a temperature of 104° F. on the sixth day p.i., and on the seventh day showed ulceration of the lips and hard palate.

Three six-month-old heifers which had been artificially infected were challenged with splenic suspensions five weeks after the original infection when buccal ulceration had subsided. All three failed to respond to the challenge which was of twice the magnitude of the initial inoculum.

Selected Outbreaks

Farm 1

This dairy farm carried 180 Ayrshire cattle of all ages. In the autumn of 1953 an epidemic of relatively mild "winter scour" occurred among the milch cows, accompanied by four abortions. During the winter of 1954 there was a more severe outbreak which started like "winter scour." Four or five cows showed a temperature of 104° F. or more, accompanied by diarrhoea and a drop in milk yield. In the next day or so another group would be affected, until almost all the milking herd had been affected. Six abortions occurred at this time. Five cows developed severe buccal ulceration, intractable diarrhoea, and died. A splenic suspension from one of the fatal cases produced the disease in experimental calves.

Farm 2

Only calves were involved in this outbreak, the 20 Ayrshire milch cows and 25 heifers being unaffected. Four calves, all under eight weeks old, were housed in a stable, and all died after an illness of only one to four day's duration. Three were available for autopsy and were found to have buccal ulceration. On the day the second calf died its stall mate was found to have one small ulcer of 5 mm. diameter inside its lower lip ; otherwise it appeared normal. Forty-eight hours later it died, and at autopsy showed multiple ulcers on the lips. Splenic suspensions from this calf produced the disease experimentally. The fourth calf died four days after lesions were seen in its mouth. A fifth calf, in a separate house, died in similar circumstances but its two pen mates remained unaffected. In the subsequent three months no further trouble was experienced.

Farm 3

This carries a large pedigree Ayrshire herd of some 300 animals in which there has been a recurrent series of problems since June, 1954. Yearlings and two-year-old heifers have suffered from diarrhoea, and a certain proportion remained so unthrifty thereafter that they had to be culled from the herd. Four pregnant heifers and two adult cows aborted at five to seven months. In the adult cows there occurred sudden individual cases of pyrexia, anorexia, and sharp fall in milk yield, often leaving a badly thriving animal. Some of these cows became lame and developed painful feet ; subsequently they showed a marked thickening above the coronary band. The young calves appeared to do well and gave no trouble.

When this farm was first investigated two autopsies were available, one of a bull and the other of a two-year-old heifer. These animals had been ill for six to eight weeks, and had severe diarrhoea and ulceration of the mouth. Another bull was severely affected and died subsequently, after an illness lasting two months.

A more extensive examination revealed that 30 per cent. of the adult cows showed varying degrees of ulceration of the mouth ; this did not appear to affect their appetite. The incidence of ulceration in the yearlings and two-year-old groups was 45 per cent., and many of these were in very poor condition.

Detailed examination failed to reveal any abnormality in the calves. Suspensions and filtrates prepared from the spleen of one of the bulls were regularly infective for young calves, producing the typical disease.

Farm 4

This 100-acre farm is devoted to the rearing of Ayrshire heifers and cross bullocks to the age of one or two years ; in the autumn of 1955 the stock consisted of 33 young animals and six nurse cows. Throughout the winter of 1955–6, 11 young animals died, and a

C. DOW, W. F. H. JARRETT AND W. I. M. McINTYRE— A DISEASE OF CATTLE IN BRITAIN RESEMBLING THE VIRUS DIARRHOEA-MUCOSAL DISEASE COMPLEX

PLATE 1.—Ulceration of lips, muzzle, gums and dental pad.

PLATE 2.—Ulceration of the hard palate.

PLATE 3.—Ulceration of the interdigital cleft.

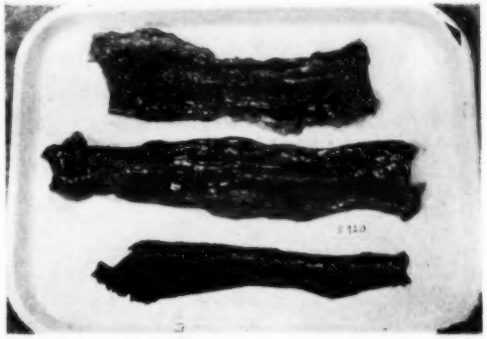


PLATE 4.—Ulcerative enteritis showing desquamation of the mucous membrane.

main feature of the disease was said to be diarrhoea. When the surviving cattle were examined the six nurse cows were in good condition while all the stirks had buccal ulceration, and either had diarrhoea or were in poor condition ; an unfavourable prognosis was given in six cases.

Discussion

The condition described in this paper falls into the category of a " mucosal disease." According to Seibold (1956) this term " . . . is now used to designate recently recognised diseases of cattle characterised by diarrhoea and ulcerations of the mucosal lining of various parts of the body."

The first description of a disease of this type was that of Olafson, MacCallum & Fox (1946) and the disease was subsequently called " Virus diarrhoea—New York." Descriptions of similar, but apparently not identical, conditions have been given by Ramsey *et al.* (1953) (mucosal disease), Pritchard *et al.* (1956) (virus diarrhoea —Indiana), and Seibold (1956) (mucosal disease—Alabama).

The infecting agents causing virus diarrhoea—New York (v.d. N.Y.) and virus diarrhoea—Indiana (v.d. I) have been shown to be viruses but they have not yet been sufficiently characterised, nor have suitable serological tests been devised to enable categorical statements to be made on the degree of identity of the various diseases.

The disease in Britain can easily be transmitted by sterile suspensions of spleen from field cases and by sterile suspensions of blood in serial passage in experimental animals ; in addition the infective agent can pass a Gradocol membrane of A.P.D. 720 m.u. and Seitz E.K. filters. There is, therefore, some evidence that it is caused by a virus.

The British disease is similar to v.d. N.Y. but the initial or acute phase does not seem to be so flagrant, indeed we believe that in many cases it may be either missed by the farmer or be so fleeting as to be deemed unimportant. Animals suffering from v.d. N.Y. appear to show a much greater degree of salivation and nasal discharge than our cases, and the sequence of events in experimentally infected animals shows a different pattern. In v.d. N.Y. the first sign is a leucopaenia at four to five days post infection (P.I.) followed by fever at seven to nine days p.i. Salivation and nasal discharge occur between the 9th and 14th day, and scouring starts at the 10th day. In our cases the fever and leucopaenia usually occurred almost simultaneously, salivation was not marked, nasal discharge was occasional and mild, and diarrhoea was usually absent. Otherwise the necropsy picture in the two diseases is similar. Abortion is a feature in both diseases.

V.d. N.Y. and v.d. I. have been shown to fail to produce cross immunity after experimental infection and challenge (Pritchard *et al.*, 1956) and the Indiana disease appears to be the more severe one. Involvement of the respiratory tract is more marked in v.d. I. than in v.d. N.Y. or in the British disease, but the Indiana workers noted the same kind of foot lesions as was shown by our cases.

The main differences between American mucosal disease and the others are the more widespread ulcerative lesions, the marked lacrimation, and the low morbidity and high mortality in the former. However, as Pritchard *et al.* (1956) point out, the differences are rather of degree than of type. It may be that these represent strain differences of one infective agent.

We have heard the British disease referred to by practising veterinary surgeons as " acorn poisoning " and " malignant catarrh." The former aetiology can be readily excluded, and the basic features of the disease do not correspond with those of malignant catarrh. In the British disease the mortality is much lower, gross eye changes are absent, and the respiratory mucosae may show mild reddening but no more severe changes ; marked nervous signs are usually absent. Plowright (1953) states that the pathological basis of malignant catarrh is one of lymphoid hyperplasia and that the ulceration of the buccal epithelium is secondary to subepithelial lymphocytic infiltration. While we have noted (in one case, marked) lymph nodal hyperplasia and oedema it is not a regular feature. In our cases the epithelial ulceration is due to changes in the epithelium itself. Sections from both ulcerated and non-ulcerated areas have been taken and, briefly, the lesion starts with intercellular oedema and cellular separation in the Malphighian layer, followed by vacuolation, intra-epithelial vesicle formation, and ulceration, the sub-epithelial tissues becoming affected only in the later stages.

Encephalitis is a common finding in malignant catarrh but so far we have found this in only one case which did not show signs referable to the lesion. Further study remains to be done on this aspect of the disease.

The virus of malignant catarrh is very susceptible to deep freezing and succumbs quickly to freezing and thawing ; the infective agent with which we are working is resistant to both these procedures. When these factors are considered, it seems unlikely that this disease resembles malignant catarrh.

Two common British diseases which immediately spring to mind as being possibly associated with the present syndrome are those loosely defined entities " winter scour," and " diarrhoea " in older calves. It is certain that some cases which would normally fall into these categories are variants of the syndrome, and it would be interesting to have reports of examinations of mouths in the case of winter scour outbreaks, and of older and not obviously clinically affected animals in herds where calves of three to eight weeks old die or have enteritic diseases. Cases of abortion in which the commonly recognised causes cannot be implicated would probably also repay examination in the light of the present findings.

Summary

1. A disease of cattle in Britain associated with fever and leucopaenia, buccal, gastric and intestinal ulceration, foot and skin lesions, and abortion is described.

2. It is classified as a " mucosal disease " and its resemblances to several diseases recently described in America are discussed.

3. The condition has been reproduced experimentally and the characters of the disease so produced are described.

References

OLAFSON, P., MACCALLUM, A. D., & FOX, F. H. (1946). *Cornell Vet.* **36.** 205.

PLOWRIGHT, W. (1953). Proc. XVth Inter. Vet. Con. Vol. 1. 323.

PRITCHARD, W. R., TAYLOR, D. B., MOSES, H. E., & DOYLE, L. P. (1956). *J. Amer. Vet. Med. Ass.* **128.** 1.

RAMSEY, F. K., & CHIVERS, W. H. (1953). *North Amer. Vet.* **34.** 629.

SEIBOLD, H. R. (1956). *J. Amer. Vet. Med. Ass.* **128.** 21.

A Spastic Form of Lameness in Friesian Cattle

BY

C. FORMSTON

Royal Veterinary College, Streatley, Berks

AND

E. W. JONES*

University of Bristol Veterinary School

FROM time to time, 1914, 1936, 1950, Friesian cattle have been imported from Holland. In 1922 a number were imported from South Africa but these were 90 per cent. Dutch extraction. In 1948, 500 in-calf heifers were sent as a gift by the Dutch Government to be sold in aid of those who suffered from the flood disaster of that year. In 1950 the British Friesian cattle society selected and imported 40 bulls and bull calves, and 13 heifers in-calf which were sold by auction and became dispersed over England, Scotland, and Wales. On the same occasion 17 other bulls were imported and allocated by the Society to artificial insemination centres—15 in England and Wales and two in Scotland.

The object of these importations has been the general improvement of the breed in this country, and the 1950 animals were selected with "particular emphasis upon butterfat and type, particularly hind legs."

For some time there appears to have been a tendency amongst British Friesian breeders to select the animal with a fairly straight hock and to eradicate the typical "cow" hock. Whatever the merits of this new conformation it is fairly obvious that, selecting this type of animal from Holland, we now have in his country a characteristic form of hind-leg lameness which, if not controlled, could seriously interfere with the reputation of the breed.

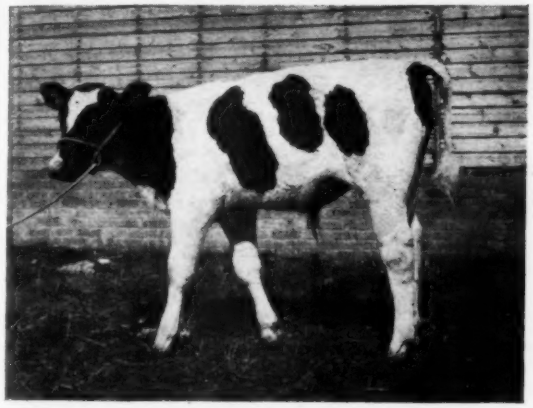
For more than a quarter of a century East Friesland (German) veterinarians have recognised the lameness under the names "contraction of the Achilles tendon" or "Elso-heel," and from cases sent into the Hanover Veterinary School, Götze (1938) described the clinical features in some detail. It was said that affected animals could be traced back to the East Friesland bull ELSO II. This, following a contribution by Formston (1956) has been vigorously denied by Köppe (1956) who attributes the defect to the Dutch ADEMA line and particularly ADEMA 197 which had a considerable influence on Dutch Friesian blood. In this connexion ALIDA's ADEMA 5 (imported 1950) which was allocated for A.I. was reputed to be throwing calves with defective hind legs in the ratio of 1 : 10 and has been slaughtered.

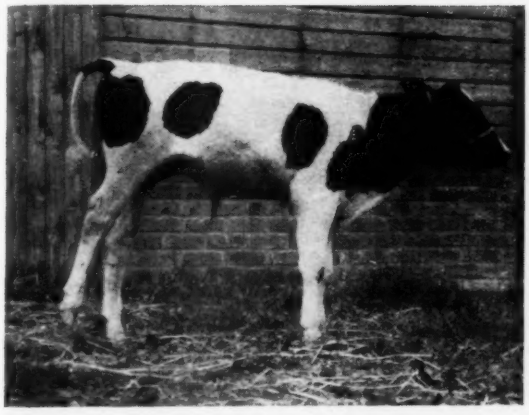
It was in 1952 that we first encountered this syndrome independently, but serious thought was not given to it until 1954 when six more calves were admitted to hospital, three to the Bristol veterinary field station at Langford, and three to the Royal Veterinary College field station at Streatley. Since then, due to its wider recognition by owners and by veterinary graduates who saw cases as students, the number has increased. This year, as a result of a request in the *British Friesian Journal* for affected calves, 25 cases were reported in the course of a fortnight from various parts of the country including one from Scotland. Fifteen calves were added to the number already at Streatley bringing the total to 23. The majority of these patients could be traced to the 1950 importation, but in three that of 1936 was involved.

Clinical Features

Lameness seldom makes its appearance before the calf is six to eight weeks old and may not be evident until it is six months or even older. The majority are definitely lame at three and a half months, but before this one would readily observe that the hind legs were abnormally straight with a tendency for the *os calcis* to be drawn towards the back of the tibia. The second thigh is usually under-developed. There is also a characteristic raising of the tail. It is believed that both legs are equally affected, but as a rule symptoms advance more rapidly in one. Before long it is found that the pastern of one leg is more upright than the other and at the walk this particular foot occasionally misses the ground and the leg is extended backwards—extended, that is, from the stifle downwards. The stifle joint itself will be slightly flexed. The next few steps may be apparently normal, but sooner or later the toe fails to make contact and the leg is again thrust backwards. If the limb is examined at this precise moment, the gastrocnemius and perforatus muscles will be in a state of spastic contraction and their tendons rigid. The calf at this stage of lameness, canters normally, and quite often if the calf is housed with others its condition passes unnoticed by the owner. The lameness is progressive, and within a week or two the leg appears distinctly shortened, adducted, and incapable of contacting the ground. If the animal is made to walk, the leg swings pendulum fashion. There is difficulty in maintaining balance, and when turning suddenly the animal may fall. Earlier it is possible forcibly to extend the limb, but at this stage it is impossible completely to extend the stifle joint. Flexion of all joints including the hock is relatively easy, but with release of the leg the hock joint quickly returns to the extended position with a spastic rigidity of the gastrocnemius and perforatus muscles and tendons. In some instances the fetlock joint of

* Now at Oklahoma Veterinary School, U.S.A.



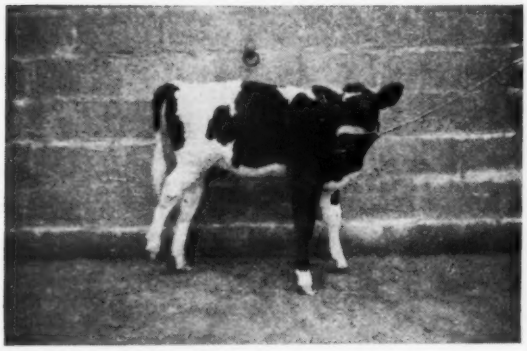


1, 2, and 3.—Bull at 3½, 5, and 20 months respectively.

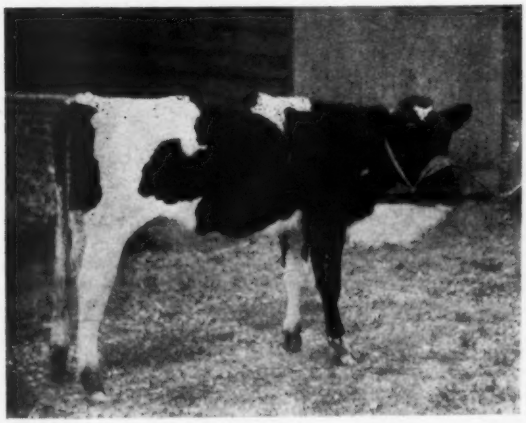
the opposite hind leg sinks to the ground. Whether this is due to weakness of the flexor tendons under the additional weight burden or is a compensatory shortening is a matter of conjecture.

During the first few months of life the development of the calf is little retarded, particularly if milk fed. Later, however, the growth rate falls and bodily condition deteriorates; more and more time is spent in recumbency. There is often some difficulty in rising, and once it has risen the animal requires a minute or two to develop a state of equilibrium. It stands with back arched and poised on three legs. The animal stands slightly over at the knee, with the pasterns extremely upright and the toes directed into the ground and under the body. The extensor pedis tendon in the phalangeal region is prominent and rigid. The tendon sheaths in the region of both hock joints, particularly of the lame leg, become distended like thoroughpins in the horse. The animal is now severely crippled and if food and water are made available it will spend most of the time lying down. Two cases of opposite sex were kept until they were 22 months old before they were destroyed. The heifer came into oestrus at 20 months, and whilst the bull was keen to serve, the act was not completed owing to the inability of both parties to maintain balance.

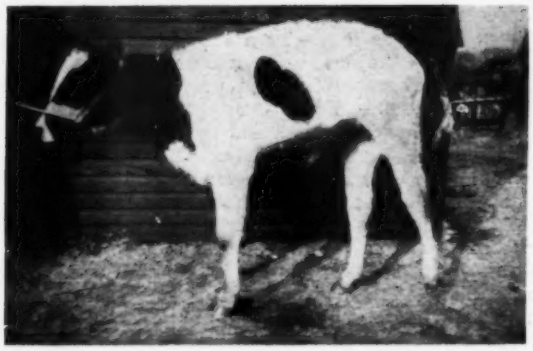
It is seldom that owners keep affected calves beyond the yearling stage. Most are thought to be suffering from injury and after prolonged treatment are slaughtered. The carriage of the limb might suggest luxation of the patella but this is easily disproved. It might be appropriate here to mention that when a normal cow is standing and taking weight on both hind legs the gastrocnemius and perforatus tendons



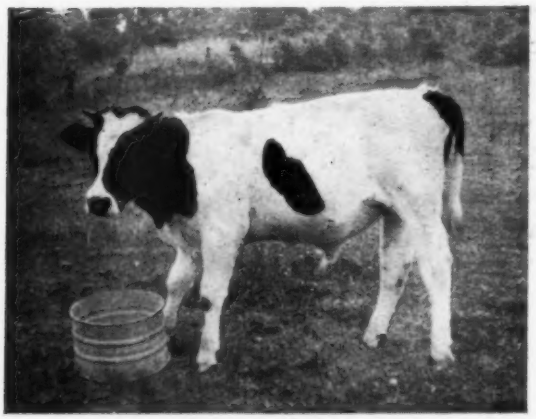
4.—A typical specimen, 3 months old.



5.—The same animal as 4 at 10 months, post-operative.



6.—A typical bilateral specimen, 7 months old.



7.—The same animal as 6 at 11 months, post operative.

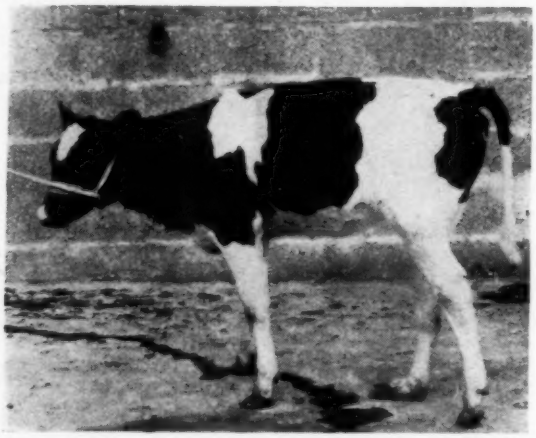
are taut. In the cow with upward " luxation " of the patella with the leg in extreme backward extension these tendons are relaxed, whereas, as previously stated, the so-called " spastic " calf exhibits absolute rigidity of these structures with extension of the hock joint and a minor degree of flexion of the stifle joint. This, plus the fact that partial section of these tendons in the young calf effects a cure, suggests that a progressive contraction of the gastrocnemius and perforatus is the factor responsible for inability to extend the stifle completely and in turn to allow the foot to reach the ground. A radiograph of the hock region in a seven-month-old calf showed a remarkable delayed epiphyseal union between the head of the *os calcis* and its parent—a further indication of contraction of the gastrocnemius, and its effect on the bone.

At no time, in this condition, is there any evidence of pain, and reflexes appear normal. No lesions of the nervous system have been detected histologically. There is every reason to believe that the defect is hereditary and recessive in character. It has been observed that certain bulls are more likely to produce defective progeny than others. Götze found that a bull operated upon as a calf, and later used for service, produced several lame offspring. It has recently been brought to the notice of one of us (C.F.) that one of the 500 in-calf heifers which came into the country in 1948 was subsequently mated to a 1950 imported bull and gave birth to a bull calf. The latter, although normal itself, has since sired three " spastic " calves.

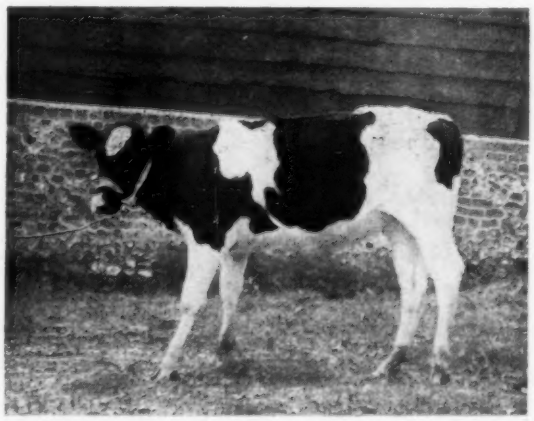
The Operation

There is no doubt that the disease is well known to Dutch breeders, and from information supplied by English visitors to Holland it appears that lame calves are operated upon as soon as they can be detected. Although the operation is quite simple, and in the young calf 100 per cent. successful, it is obviously to be deprecated if the subjects are intended for breeding.

The operation consists of the exposure and section —complete or partial—of the gastrocnemius and perforatus tendons through a mid-line or lateral incision above the point of the hock under local infiltration anaesthesia with the calf in the standing position. This is preferred to lateral recumbency because the effect of each stage of the operation can



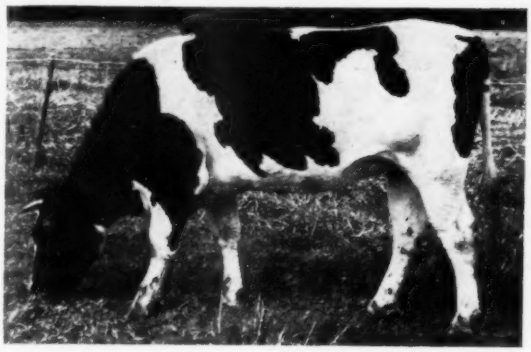
8.—Over extension of carpus of opposite leg, 3½ months old.



9.—The same calf as 8 at 8 months, post operative.

Radiograph of hock joint. Normal calf, 7 months old.

Radiograph showing delayed epiphyseal union of head of *os calcis*. Lame calf 7 months old.



12.—Heifer 1 year 10 months. Right hind leg operated upon at 5 months.

immediately be determined. Firstly, the gastrocnemius tendon is completely divided transversely. This usually allows the foot to approach nearer to the ground. The perforatus tendon is now only partially severed, and in very young calves this is sufficient for the calf to put its foot to the ground and become ambulatory on all four legs. In older calves it is frequently necessary to section completely the perforatus which causes the hock to sink to the ground. Within 10 to 14 days the leg is being used, and is to all intents and purposes normal within a month. In calves approximately seven to nine months old it would seem that the biceps femoris tarsal tendon also has a restraining influence and this is cut also. If, in bilateral cases only the more seriously affected leg is corrected, the characteristic symptoms quickly appear in the other. The best results are obtained in the young calf at a time when it is possible manually to extend all joints of the limb. In the immense majority of older calves—average age five months—results are satisfactory in an ambulatory sense but they can easily be picked out from normal animals. The pasterns of the hind legs remain very upright with most of the weight taken on the toes. The object of these operations has been to enable affected calves to be kept for breeding purposes in the hope that further light may be thrown on the genetic aspect of the disease.

Acknowledgments.—Thanks are extended to the British Friesian Society and its secretary, Mr. W. H. Bursby, for a monetary grant to the Royal Veterinary College to enable investigations into the problem to continue. We are grateful to Professor A. Messervy and Dr. R. M. Norman of Bristol for a pathological report on the central nervous system and spinal cord from an affected calf. For some of the photographs we are indebted to Messrs. E. F. Lewis and P. Henfry. Finally, thanks are due to colleagues at Streatley who have helped surgically and in many other ways, and to those veterinary surgeons from whom animals have been received.

References

GOTZE, R. (1938). *Deut. Tierarztl. Wschr.* **46.** 197.
FORMSTON, C. (1956). *Brit. Friesian Jour.* **38.** 67.
KÖPPE, A. (1956). *Ibid.* 214.

News and Comment

CONGRESS ISSUES

There will be two further special Congress numbers of THE RECORD. Next week we shall publish the full text of the President's address to the Association, together with an account of the opening ceremony, etc. On September 29th all the social events will be described. As last year, a single volume of the papers and discussions will be published early in December.

FOOT-AND-MOUTH DISEASE

The area described in the schedule below is declared to be an Infected Area for the purpose of preventing the spread of foot-and-mouth disease:—

IN THE COUNTY OF WILTS

The Boroughs of Swindon, Calne and Marlborough.

The Petty Sessional Division of Calne.

In the Petty Sessional Division of Malmesbury: So much of the parishes of Dauntsey and Brinkworth as lies to the south and east of the road running from Sutton Benger via Dauntsey Green, Brinkworth and Ballard's Ash to Wootton Bassett including the said road.

In the Petty Sessional Division of Cricklade: The parishes of Lydiard Millicent, Lydiard Tregoze, Wootton Bassett, Tockenham, Lyneham, Broad Town and Clyffe Pypard.

In the Petty Sessional Division of Swindon: The parishes of Stratton St. Margaret, Bishopstone, Wanborough, Liddington, Chisledon and Wroughton.

In the Petty Sessional Division of Marlborough: The parishes of Broad Hinton, Aldbourne, Baydon, Winterbourne Bassett, Ogbourne St. George, Berwick Bassett, Winterbourne Monkton, Ogbourne St. Andrew, Preshute, Mildenhall, Ramsbury, Fyfield, Avebury, East Kennett, West Overton, Savernake and Burbage and so much of the parishes of Froxfield, Little Bedwyn and Great Bedwyn as lies to the west of the railway running from West Grafton via Great Bedwyn to Hungerford excluding the said railway.

In the Petty Sessional Division of Everley and Pewsey: The parishes of Alton, Huish, Wootton Rivers, Easton, Milton Lilbourne, Pewsey, Wilcot, Woodborough, Manningford and North Newnton.

In the Petty Sessional Division of Devizes: The parishes of Bishop's Cannings, All Cannings, Stanton St. Bernard, Beechingstoke, Patney, Stert, Etchilhampton and Roundway.

IN THE COUNTY OF BERKS

In the Petty Sessional Division of Faringdon: The parishes of Eaton Hastings, Buscot, Great Faringdon, Littleworth, Great Coxwell, Coleshill, Little Coxwell, Shellingford, Fernham, Watchfield, Longcot, Shrivenham, Uffington, Bourton, Compton Beauchamp, Woolstone and Ashbury.

IN THE COUNTY OF OXFORD

In the Petty Sessional Division of Bampton West: The parishes of Little Faringdon, Langford, Kelmscot and Grafton and Radcot.

IN THE COUNTY OF GLOUCESTER

In the Petty Sessional Division of Fairford: The parishes of Coln St. Aldwyn, Eastleach, Quenington, Hatherop, Southrop, Poulton, Fairford, Maiseyhampton, Lechlade and Kempsford and so much of the parish of Bibury as lies to the south and east of the main road (A.433) running from Barnsley to Aldsworth excluding the said road.

In the Petty Sessional Division of Cirencester: The parishes of Ampney St. Mary, Ampney St. Peter, Siddington, Driffield, Down Ampney, Somerford Keynes, South Cerney, Poole Keynes and so much of the parishes of Barnsley, Ampney Crucis and Preston as lie to the south and east of the road running from Cirencester to Bibury excluding the said road.

IN THE COUNTY OF WILTS

In the Petty Sessional Division of Malmesbury: The parishes of Oaksey and Minety.

In the Petty Sessional Division of Cricklade: The parishes of Marston Meysey, Latton, Ashton Keynes, Leigh, Cricklade, Braydon and Purton.

In the Petty Sessional Division of Swindon: The parishes of Inglesham, Castle Eaton, Hannington, Highworth, Blunsdon St. Andrew, Stanton Fitzwarren, Haydon Wick and South Marston.

The Foot-and-Mouth Disease Infected Area around Rockley, Marlborough, Wiltshire, has been extended to include:—

IN THE COUNTY OF WILTS

Borough of Devizes.

In the Petty Sessional Division of Devizes: The parishes of Potterne, Urchfont, Easteron, Market Lavington, Chirton and Marden.

In the Petty Sessional Division of Everley and Pewsey: The parishes of Wilsford, Charlton, Rushall and Upavon.

The Foot-and-Mouth Disease Infected Area around Oldland Common, Bristol, Gloucestershire, has been contracted to the area set out on the schedule below as from September 10th, 1956.

The City and County Borough of Bristol.

IN THE COUNTY OF GLOUCESTER

The Petty Sessional Division of Lawford's Gate.

In the Petty Sessional Division of Thornbury: The parishes of Alveston, Rangeworthy, Almondsbury and Patchway.

In the Petty Sessional Division of Sodbury: The parishes of Iron Acton, Yate, Horton, Little Sodbury, Sodbury, Westerleigh, Dodington, Tormarton, Acton Turville, Pucklechurch, Dyrham and Hinton, Cold Ashton and Marshfield.

IN THE COUNTY OF SOMERSET

In the Petty Sessional Division of Keynsham: The parish of Keynsham.

In the Petty Sessional Division of Weston: The parishes of North Stoke, Kelston, Charlcombe, Swainswick, St. Catherine and Batheaston.

IN THE COUNTY OF WILTS

In the Petty Sessional Division of Chippenham: The parishes of Nettleton, North Wraxall and Colerne.

The Foot-and-Mouth Disease Infected Area around Tewkesbury, Gloucestershire, has been extended to include:—

IN THE COUNTY OF GLOUCESTER

In the Petty Sessional Division of Tewkesbury: The parishes of Tirley, Deerhurst and Leigh.

In the Petty Sessional Division of Cheltenham: The parish of Boddington.

The area described below will cease to be an Infected Area for the purpose of preventing the spread of foot-and-mouth disease on September 18th, 1956.

IN THE COUNTY OF GLOUCESTER

The Petty Sessional Divisions of Newnham and Coleford.

In the Petty Sessional Division of Lydney: The parishes of Lydney, Aylburton and Alvington.

In the Petty Sessional Division of Gloucester: The parish of Churcham.

In the Petty Sessional Division of Newent: The parish of Huntley and so much of the parishes of Newent, Taynton and Tibberton as lies to the south and west of the road running from Three Ashes via Newent, Great Cugley and Tibberton to Gloucester excluding the said road.

IN THE COUNTY OF HEREFORD

In the Petty Sessional Division of Ross: The parishes of Ross Urban, Ross Rural, Walford, Welsh Bicknor, Hope Mansel, Weston under Penyard, Linton, Lea and Aston Ingham.

U.S.A. OPERATIONS MISSION TO ISRAEL

Professor F. H. Manley has returned to his assignment as Veterinary Bacteriologist in the Agricultural Division of the United States Operations Mission in Israel, after a short leave spent in England.

UFAW LUNCHEON

Arrangements have been made for a UFAW luncheon during Congress week, and it is hoped that this new venture will be well supported. The lunch will be held at the Clarendon Hotel, Leamington, at 1 p.m. on Thursday, September 20th, and will cost 12s. 6d. Will those wishing to attend please inform Miss Williams, 7a, Lamb's Conduit Passage, London, W.C.1, *not later than September 18th* and enclose 12s. 6d.?

PERSONAL

Marriages

JAMES-WELLS.—On September 1st, 1956, in Bulawayo, S. Rhodesia, Roy Frank Lewis, elder son of Mr. and Mrs. F. A. James, Summerley, Bognor Regis, to Audrey Jean, B.SC., M.R.C.V.S., daughter of Mr. and Mrs. S. J. Wells, Goring-on-Thames, Oxon.

WELLS-VOSS. — The wedding took place on August 18th, 1956, at All Saints' Church, Kampala, Uganda, of John Wells, B.SC., M.R.C.V.S., youngest son of Mr. and Mrs. E. M. Wells of Chelmsford, Essex, to Nita, younger daughter of Mr. and Mrs. T. H. Voss, of Bedford.

COMING EVENTS

September

16th to 22nd (Sun. to Sat.). 74th B.V.A. Annual Congress at Royal Leamington Spa.

17th (Mon.). Meeting of the Catholic Veterinary Group at St. Peter's Church, Dormer Place, Leamington Spa, for mass at 8 a.m.

19th (Wed.). Meeting of the Veterinary Christian Fellowship at Arlington House, 3, Arlington Avenue, Leamington Spa, 4.30 p.m.

27th (Thurs.). Meeting of the Lakeland Division, B.V.A., at the George Hotel, Penrith, 6 p.m.

October

4th (Thurs.). General Meeting of the Central Division, B.V.A., at the Royal Veterinary College, Camden Town, N.W.1, 6 p.m.

6th (Sat.). Joint Meeting of the Nutrition Society and The Laboratory Animals' Bureau at Guy's Hospital Medical School, St. Thomas Street, London, S.E.1, 10.40 a.m.

12th (Fri.). Meeting of the Welsh Branch, B.V.A., at Aberystwyth.

16th (Tues.). Joint Meeting of the Essex Division, B.V.A., with the Essex Branch of the N.F.U. at the Essex Institute of Agriculture, Writtle, Nr. Chelmsford, Essex, 7.30 p.m.

18th (Thurs.). Ordinary General Meeting of the South Eastern Division, B.V.A., at the Royal Star Hotel, Maidstone, 2.30 p.m.

24th (Wed.). Meeting of the R.A.V.C. Division, B.V.A., at the Zoological Society of London, Regent's Park, London, N.W.1, 12 noon.

November

22nd and 23rd (Thurs. and Fri.). B.V.A. Conference on Supplements and Additives in Animal Feedingstuffs at the Victoria Halls, Bloomsbury Square, London, W.C.1.

ADDRESSES OF DISEASE INFECTED PREMISES

The list given below indicates, first the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

Anthrax

Ches. Baddiley Cottage, Baddiley, Nantwich (Sep. 1); Brook Farm, Marthall, Knutsford (Sep. 9).

Denbigh. Wirn Isa, Llangollen (Sep. 1).

Derby. Scaddows Farm, Ticknall; Hill Top Farm, Parwich, Ashbourne (Sep. 3); Cow Close Farm, Birchover, Matlock (Sep. 5); Elnor Lane Farm, Whaley Bridge, Stockport (Sep. 6).

Flints. Groes Ffordd Lixum, Holywell (Sep. 4).

Salop. Greenhurst Farm, Marchamley Wood, Shrewsbury (Sep. 4).

Staffs. Newchapel Farm, Newchapel, Stoke-on-Trent (Sep. 9); Home Farm, Sugnall (Sep. 5).

Westmorland. Cold Keld Farm, Fell End, Ravenstonedale, Kirkby Stephen (Sep. 4).

Foot-and-Mouth Disease

Glos. Stanshawes Farm, Yate, Bristol (Sep. 3).

Wilts. Temple Farm, Rockley, Marlborough (Sep. 5); Manor Farm, Patney, Devizes (Sep. 6).

Fowl Pest

Lancs. Heatherfield Farm, Moss Lane, Little Hoole, Preston (Aug. 31); 115, Blackpool Road, Carleton; Lingart Farm, Barnacre, Garstang (Sep. 1); Mon Abri, Moss Lane, Little Hoole (Sep. 4); Whitehouse Poultry Farm, Gill Lane, Longton; White House Farm, Gill Lane, Longton; Higher Hill Top, Thornley, Longridge; Springfield, Gill Lane, Longton; Kilshaws Farm, Carleton, Blackpool (Sep. 5); Belmont Farm, Haslingden Old Road, Rawtenstall; 103, Wood Lane, Heskin Chorley; 143, Blackpool Road, Carleton, Blackpool (Sep. 6).

Norfolk. Church Farm, Winterton-on-Sea, Gt. Yarmouth (Sep. 1); White House Farm, Yaxham, Dereham (Sep. 5); Fox & Goose Public House, North Tuddenham, Dereham (Sep. 6).

Yorks. Manor Farm, Saxton, Tadcaster (Sep. 1).

Swine Fever

Ayr. Burnfoot Nursery, Ardrossan (Sep. 10).

Cambs. 16, Mill Street, Gamlingay (Sep. 4).

Ches. 7, Sealand Road, Chester (Sep. 7).

Dorset. Walford Farm, Wimborne (Sep. 6).

Durham. North Follingsby Farm, Wardley-on-Tyne, Felling, Gateshead (Sep. 9).

Essex. Lodge Farm, Great Horkesley, Colchester (Sep. 10).

Flints. Waen Farm, Gwernaffield, Mold (Sep. 4).

Hants. Chez Nous, Waltham Chase, Southampton (Sep. 4).

Hunts. Piggeries, R.A.F. Station, Upwood (Sep. 6).

Norfolk. Rosetta Road, Spixworth, Norwich (Sep. 10).

Oxford. Jubilee Villa, Mill Lane, Benson (Sep. 6).

Salop. Park Farm, Hordley, Ellesmere (Sep. 5).

Somerset. Trewarren Farm, Easton in Gordano (Sep. 5); Piggeries, School Lane, Barton Seavington, Ilminster (Sep. 6).

Suffolk. Crag and Church Farms, Sudbourne, Woodbridge (Sep. 4).

Surrey. Piggeries, Combe Farm, Aldens Hill, Godalming (Sep. 6); Pitchers Copse Farm, Beddlestead Lane, Titsey, Caterham (Sep. 6).

Wilts. Darrells Farm, Ramsbury, Marlborough (Sep. 10).

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the B.V.A.

Dehorning

Sir,—The Congress is with us again, and probably amongst those present (unfortunately I cannot be), the question of the most suitable local anaesthetic to permit dehorning will be discussed.

This is a note on the dehorning of 874 cattle; and I hope that a more critical and fuller communication will be forthcoming as a result of dehorning over 300 head later this year.

Two colleagues and myself took turns at administering the local anaesthetic, and dehorning, in order individually to evaluate as closely as possible the results obtained.

We had one controlled trial in a herd of 75 in which we used "Xylotox" for one horn and "Ravocaine" for the other. The dosage of each product was 5-6 ml. for cows and 4-5 ml. for calves and this

dosage was employed in all other animals dehorned. In this particular herd, isolated cases did occur where an inadequate initial response was obtained and this occurred on both sides of the head. We attributed this either to the abnormal placing of the nerve or an exaggerated collateral nerve supply. We could not observe any difference in effects between "Xylotox" or "Ravocaine."

The remaining 799 animals were all dehorned under "Ravocaine," and on one farm of 70 cows, dehorning was delayed up to one and a half hours after injecting —yet with very satisfactory results. The conclusions reached were that both anaesthetics provided excellent nerve blocking action to allow dehorning, with the onset and duration of anaesthesia good and subsequent bleeding in no way unusual.

Yours faithfully,

J. R. LLOYD.

Elvedon Park,
Nr. Thetford, Norfolk.

September 6th, 1956.

Telephone Charges and Automatic Exchanges

Sir,—I was interested in Miss Joshua's letter on the transfer-of-calls service offered by the Post Office. I, myself, have suffered in the hands of their so-called "service."

On August 19th I visited friends in Chelmsford and arranged with my local exchange for calls to be switched to a colleague during my absence—I may mention that I was on the permanent transfer system.

At about 5 p.m. a client tried to contact me, but instead of the service functioning as it should have done, all my client got was "no reply."

Whether this had happened earlier in the day or on other occasions I do not know.

Miss Joshua considers the yearly subscription of eight guineas reasonable; with this I heartily disagree. I consider four, or at the most six, guineas would be plenty even if the system worked. All Post Office charges are much too high in my opinion.

Yours faithfully,

C. G. HOPSON.

17, Sneath Avenue,
Golders Green, N.W.11.

September 9th, 1956.

A Diagnostic and Consultative Service

Sir,—From the ever mounting flow of material to this Station it seems that the profession is increasingly aware of the benefits and satisfaction, both to themselves and their clients, of accurate differential diagnosis, and whenever possible carefully applied specific therapy.

For approximately three years now, the Canine Research Station's diagnostic and consultative services have been available to the profession, and it has been most encouraging to see their rapid growth. It was felt that such service, for practitioners engaged in canine practice, was sorely needed, and this point has certainly been proved by results. At first the Station benefited by applying a proportion of the material to research purposes; now, however, as the scope has increased, the proportion so used has become relatively smaller. Nevertheless, the service continues, and the purpose of this letter is to acquaint those of our profession unaware of our activities, with details of the services offered.

Briefly they include: bacteriological examinations, together with antibiotic sensitivity tests, leptospiral agglutination tests, clinical laboratory tests, *i.e.*, urological and haematological examinations including blood urea and blood sugar determinations, worm egg identification and counts. Serological investigations are also available in the form of complement fixation tests for canine virus hepatitis antigen and antibody.

The Station, therefore, does not boast a highly elaborate service, but rather suggests that a combination of simple but relevant laboratory tests, together with the clinical symptoms observed by practitioners, can be of considerable value, and enhance the status of the individual and the profession generally.

Unfortunately, facilities are not available for chemical analysis in cases of suspected poisoning.

Pathological examinations are also available, but whereas a full *post-mortem* examination is relatively inexpensive, histological investigations involving the preparation and detailed examination of tissues are time consuming, and in consequence the charge increases accordingly.

In this connexion, although it is preferable to receive a whole carcase, weather conditions and indifferent transport facilities frequently result in the material being almost useless on arrival. If such adverse circumstances are anticipated it is much more satisfactory to receive tissues in 10 per cent. formol saline, together with a full *post-mortem* report.

In addition to the diagnostic service, cases are seen at Kennett in consultation with colleagues, and the "on the spot" laboratory facilities are of considerable value. Within the next few months a surgical hospital is to be opened where a limited number of cases of a general nature will be admitted for treatment or observation. Special interest is being taken in hip and stifle conditions, which will be admitted for observation, surgical interference, and post-operative treatment, at charges which are intended to cover actual expenses only.

Our purpose is to be of assistance to our colleagues in practice, and although facilities are not vast they are available at costs which are constantly under review and which are kept as low as possible. As in the past strictly ethical relationships are considered of the utmost importance, and no cases, or material, are accepted except at the request of the veterinary surgeon in charge of the case.

Yours faithfully,

S. F. J. HODGMAN.

Canine Research Station,
Animal Health Trust,
Kennett, Suffolk.

September 10th, 1956.

The Commercial Exhibition

As in previous years a number of manufacturing and other commercial houses have taken stand space in the exhibition which forms an interesting and valuable adjunct to the Annual Congress. The information below summarises the main points of interest on the individual stands.

Arnold & Sons Ltd.

The stand of Messrs. Arnold & Sons (Veterinary Instruments) Limited, will contain, as usual, their range of the most up-to-date instruments and appliances. Notable among these are the Harrop dog artificial vagina, a complete range of artificial insemination equipment, and the new plastic artificial vagina for bulls.

The heating panels for small-animal operations, and the penicillin teat bougies, together with the important suture material, "Supramid Braun" will no doubt interest the profession.

Interest will also be centred on a number of articles now accepted as of standard use by veterinary surgeons, such as the "Analgic" needle, the "Plim" syringe and the automatic hypodermic syringes.

Messrs. Arnold & Sons (Veterinary Instruments) Limited now have six branches altogether; the most recent being at 1, Salisbury Road, Moseley, Birmingham 13. The manager is Mr. C. Cartwright.

Bailliere, Tindall & Cox, Ltd.

The veterinary publishers and booksellers of 7 and 8, Henrietta Street, London, exhibit a full range of books published here and in the U.S.A.

Their latest publication is Professor David Wirth's *Introduction of Veterinary Diagnosis*. This exceptionally well-illustrated book (a photograph accompanies almost every passage of instruction) has long been a favourite text-book on the Continent, but this is the first English edition; it has been prepared by Miss Annie I. Littlejohn, B.V.SC.(LIV.), M.R.C.V.S., who has considerably enlarged its scope to meet British requirements. The new book by R. H. Smythe, M.R.C.V.S., *Veterinary Ophthalmology*, also on show, is the first on its subject for over 20 years. It deals with the anatomical and physiological as well as the clinical aspects of veterinary ophthalmology and has been widely praised in the professional journals as "a monumental work of first-rate importance."

An advance copy of Monnig's *Veterinary Helminthology and Entomology* will be available for inspection. This new fourth edition of the standard work for veterinarians on diseases of domesticated animals caused by helminth and arthropod parasites has been extensively revised by Dr. Geoffrey Lapage, M.D., M.A., M.SC., and should be in the hands of every student and practitioner.

Among other standard books in recent editions are *Anthony's Diseases of the Pig and Its Husbandry* (4th edition). *Gaiger and Davies' Veterinary Pathology and Bacteriology* (4th edition). *Laing's Fertility and Infertility in the Domestic Animals*, and the seventh edition of *Dukes' Physiology of the Domestic Animals*.

Bayer Products Ltd.

The background to the stand shows the extensive range of veterinary biologicals produced by the Bayer Institute at Exning, near Newmarket. The Institute is now being enlarged to give more space for production, development, and original research. In common with all the other products in the Bayer range, biological preparations are supplied exclusively to members of the veterinary profession.

Products shown on the stand this year include: "Ravocaine," the new local anaesthetic; "Roccal" concentrate 10X, powerful, all-purpose disinfectant and deodorant; "Sulfomyl," the non-irritant sulphonamide eye solution and ointment; "Tycine" ear drops for otitis externa; and "Hepmin," the one-injection treatment for anaemia and malnutrition. Reference is also made to penicillin and streptomycin preparations.

Benger Laboratories Ltd.

Benger Laboratories are exhibiting "Imferon," iron-dextran complex for the effective treatment of piglet anaemia.

"Imferon" was introduced in 1954 for the treatment of iron deficiency anaemia in man. It is the first and only iron preparation for intramuscular injection which is totally absorbed and permits 100 per cent. utilisation of the iron injected.

Following wide clinical assessment "Imferon" has become the standard treatment for iron-deficiency anaemia, particularly where a rapid response is essential. It is its ability to provide single-dose control of anaemia in piglets which has made "Imferon" of particular value to the veterinary surgeon. One 2-cc. injection at a cost of 1s. 9d. given at three days of age or as soon after as possible is recommended for eliminating the development of piglet anaemia.

Boots Pure Drug Co. Ltd.

The accent, on the Boots stand, is on a series of products, developed for use in the control of metabolic disturbances in livestock; a unique rubber "hanging" device is also featured for use in conjunction with these products.

This display is supported by the new *large tube* penicillin intramammary suspension in the economy and dispensing packs, giving details of the "own name" tube labels where required. Prominence is also given to "Service to the Profession"; reference is made to the advantages arising from nation-wide distribution to the profession of most proprietary preparations as well as drugs and Boots specialities through one channel, and emphasis is placed on the advantages to be gained by means of the "one transaction" system.

Brookwick, Ward & Co.

A series of photographs illustrating rumenotomy and caesarean section, using Blendinger's hook forceps, will be shown. Photographs also show some of the uses of Goetze's improved calving chains.

Visitors will be able to see clearly the advantages of the muto multi-dose syringe with preset dosage, and to test the new adapter which enables this popular syringe to be refilled continuously without loss of time.

Of interest to lecturers and demonstrators are the anatomical models of the cow, pig, hen, udder and rumen. Illustrated catalogues of all the models available and keys to the numbered parts of the models will be freely obtainable.

A selection of hoof, teat and castration instruments is also to be seen.

A new probang is constructed with a hinged head piece and secures release of gases in animals affected by bloat. It can also be used as a normal probang to remove obstructions. A dog probang has three claws which can be operated so as to enclose and grip foreign bodies.

Burroughs Wellcome & Co. (The Wellcome Foundation Ltd.)

Burroughs Wellcome & Co. feature at this year's Congress Exhibition sex hormone products used in bovine practice, and "Themalon" the outstanding analgesic for canine use. The sex hormone products, which are linked up with a colourful diagrammatic representation of the oestrus cycle of the cow superimposed upon a pastoral photograph, are Wellcome Pregnant Mares' Serum, Lutormone, Protormone, Tabloid Progesterone and Wellcome injection of stilboestrol dipropionate. On a second panel "Themalon" together with its antagonist "Lethidrone" is illustrated to emphasise the graded analgesia possible with this product.

Among other products displayed are "Aerosporin" compound ointment and "Temadex" skin dressing, both of particular interest to the small-animal practitioner. The former is a valuable antibiotic ointment for surface application, and the latter a most efficient acaricide and fungicide.

"Melinax" sodium propionate compound for the treatment of acetonaemia and Wellcome Ovine Enzootic Abortion Vaccine for the protection of gimmers and ewes against enzootic virus abortion are examples of products for use in the large-animal field.

As in past years, a special folder prepared by Burroughs Wellcome & Co. for the Congress has been sent in advance to all members of the veterinary profession. The front cover of this attractive item of literature illustrates a local legend of veterinary interest and inside are descriptions of places of interest in and around Leamington Spa : a map of the Royal Spa appears on the back cover.

Cooper McDougall & Robertson Ltd.

Prominently featured is " Coopane " brand piperazine adipate now widely used by veterinarians for the control of ascarids and some other nematodes in domestic animals. Displayed in conjunction with the various packs of " Coopane " was " Ovine Drench," a liquid piperazine formulation introduced this season for the treatment of *Nematodirus* disease in lambs.

A reminder of the approach of the " liver fluke season " is made by a display of PHCC—a composite mineralised formulation incorporating phenothiazine, hexachlorethane, cobalt and copper. Two separate formulations are available to ensure correct anthelmintic efficiency against fluke and worms in both sheep and cattle.

As Coopers distribute the Lederle range of aureomycin and achromycin veterinary products in Great Britain and Northern Ireland, four illuminated panels are given over to the display of such well-accepted formulations and more recent, introductions as aureomycin ointment for udder infusion for the treatment of chronic or acute mastitis, particularly those cases where penicillin or other antibiotic therapy has proved inadequate. Aureomycin Soluble (Tinted)—for the prevention and treatment of scours in calves and pigs. Aureomycin Soluble Oblets—a dual-purpose product for use as a pessary or for oral administration. Achromycin Intramuscular (Veterinary), specific against many bacterial infections and for the control of Achromycin sensitive bacteria associated with virus diseases.

Evans Medical Supplies Ltd.

Among the veterinary specialities to be exhibited are Rondase (Hyaluronidase-Evans), Nobecutane (a plastic wound dressing), Fotogel (a microfine suspension of barium sulphate B.Vet.C. for radiological use), and Pirevan (quinuronium sulphate B.Vet.C. for redwater in cattle). Technical literature and demonstration packs of these and other products will be available on the stand.

W. Gimber & Sons Ltd.

Stand No. 15—that of W. Gimber & Sons Ltd., 2, Queen's Road, London, S.E.15—will be exhibiting veterinary instruments, equipment and sundries.

Amongst many items of special interest will be a new type of metal detector, the latest veterinary ether/oxygen anaesthetic apparatus, two new types of pig rings, and an adaptor for use in small-animal intravenous work.

A new catalogue of all our products has recently been prepared, and copies will be available on the stand.

Mr. W. S. Gimber will be in attendance, and it is hoped that the display will prove interesting to all those visiting the Exhibition.

Glaxo Laboratories Ltd.

Emphasised on the Glaxo stand is the fight against mastitis. Using Glaxo cerates and P.P.V.C. 300 Glaxo in particular, the means are provided for a most effective campaign against mastitis.

Cortisone and hydrocortisone are being used most successfully in the veterinary field and illustrations of the Glaxo synthesis from sisal waste are on view. The range of finished products is considerable ; Ef-Cortelan (hydrocortisone) products include intra-articular injection, skin lotion and ointments, eye drops, eye ointment and tablets while Cortelan (cortisone) products are eye drops and eye ointment, tablets and an intramuscular injection.

Among the new products introduced by Glaxo is streptopen suspension—streptomycin and procaine penicillin in an oily base—which forms a new treatment for the control of *Vibrio fetus* infection in bulls.

Another new product is Neobacrin ointment—containing neomycin and bacitracin. This new antibiotic ointment avoids the risk of sensitisation and has a wide bacterial spectrum.

Two new larger packs of well-established products are now available. Cytamen " 1,000," injection of vitamin B_{12} (cyanocobalamin), indicated in inappetance, loss of condition and unthriftiness, is on display in new 10 cc. vials. Streptovex, an oral streptomycin solution, gives a new, simple and inexpensive specific treatment for most cases of infectious scours. An 80-oz. size is now available in addition to the existing 8-oz. pack.

The veterinary surgeon is also reminded of such familiar products as Crystapen, Mylipen and Dimycin. On exhibition are also Vetestelin, an oily injection of vitamin D, Intradex, a solution of dextran blood volume restorer and Amvilac, the comprehensive pig food manufactured by Glaxo.

C. J. Hewlett & Son Ltd.

The exhibit comprises new and established veterinary specialities including :—

A-D-M brand injection, containing magnesium sulphate and dextrose monohydrate, for subcutaneous or intramuscular administration in acetonaemia.

Aloquone brand dihydroxyanthraquinone powder. A stable, tasteless and odourless preparation with laxative and purgative properties for all species when used in ascending dosage.

Ascarine brand (piperazine citrate) for the treatment of ascarid and hookworm infestation in all species.

Calcium Boro-Gluconate P., P.M., and P.M.D., for the milk fever complex.

Duo-Phos containing 20 per cent. dextrose with double phosphates for hypophosphataemia and acetonaemia.

Hewsol. A safe and efficient germicide reformulated with D.C.M.X. to give a wider range of anti-bacterial activity.

I.P.S. brand penicillin sulphadimidine, for streptococcal mastitis complicated by secondary pathogens (except *C. pyogenes*).

Probactol. Indicated in bacterial enteritis of all species, particularly white scour in calves, necrotic enteritis of pigs and canine distemper enteritis.

Tympasil, a methyl silicone dispersal, is a modern surface tension increasing agent for the treatment of frothy bloat.

Veterinary hormones including Cortrophin " Z " long-acting A.C.T.H., as sole distributors for Messrs. Organon Laboratories Ltd.

" Terramycin " and " Cortril " as sole distributors for Messrs. Pfizer Ltd. in the United Kingdom.

Veterinary instruments on display include the McLintock T.T. Syringe, the McLintock Injector and instruments for rumenotomy.

Imperial Chemical (Pharmaceuticals) Ltd.

The stand of I.C.I. symbolises the characteristics of that company's products, *viz.*, efficiency with economy, for the limited space available to exhibitors has here resulted in a display where economy in the design has resulted in an efficient use of the area.

The most interesting feature on the stand is the new " Stromez " for the treatment of enteritis in all species. Since it contains adequate doses of sulphamezathine and streptomycin mixed with kaolin, " Stromez " is recommended with confidence in the treatment of this and allied conditions.

The sulphamezathine exhibit is interesting as its photograph of water buffaloes will remind visitors of the series of advertisements in THE VETERINARY RECORD featuring " unusual patients " in a wide range of wild animals which had been successfully treated for various conditions with sulphamezathine.

Other products of the company's manufacture on display are formulations of their most recent discovery " Hibitane." This outstanding antiseptic is here shown in the form of pessaries for the treatment of metritis, and as an udder wash for the control of mastitis.

International Serum Co., Ltd.

The company are showing their comprehensive range of antisera, vaccines and toxoids. Improved pulpy kidney, braxy, blackleg, and braxy blackleg vaccines have been introduced this season.

Of particular interest are the dysentery and pneumonia antiserum for calves, and Suisan for the enteric diseases of young pigs. Lusane, for the treatment of husk in cattle, has proved very popular and is prominently displayed. Other

"Behring" products include Caninovac brand of canine distemper egg-adapted (living) vaccine, infectious hepatitis antiserum and Erysorb brand of swine erysipelas vaccine A.T.

Also available in vacuum dried form is feline infectious enteritis vaccine produced by the Swiss Institute of Dr. E. Graeub, A.G., Berne.

Kodak Ltd.

The Kodak stand (No. 19) will display a wide range of exposure, processing and viewing equipment for veterinary departments. The range includes cassettes, intensifying screens, hangers, safelight lamps and illuminators. A "Cine-Kodak" royal magazine camera for making 16 mm. cine films will be shown. New items include the Kodak Bantam "Colorsnap" camera—an inexpensive, easy-to-use camera perfectly suitable for recording veterinary subjects in true colour on "Kodachrome" film.

There will be an interesting display of colour slides of veterinary subjects and radiographs of large and small animals. The stand will be staffed by qualified radiographers able to answer questions on all aspects of veterinary radiography and photography.

May & Baker, Ltd.

On the stand of Pharmaceutical Specialities (May & Baker), Ltd., special attention is drawn to their Largactil brand of chlorpromazine hydrochloride, a drug of unusual interest with uses for sedation in common nervous disorders, in minor procedures, and during transport. The product is also recommended as a premedicant in anaesthesia and for the control of vomiting, particularly in travel sickness.

Recent introductions of this company include Strinacin for control of enteritis, Thiosolucin for the treatment of penicillin-resistant staphylococcal mastitis, and Carbergan for the treatment of bovine husk.

Metropolitan Vickers Electrical Co. Ltd.

Newton Victor Ltd., the X-ray sales department of Metropolitan-Vickers Electrical Co. Ltd., will be exhibiting a selection of their X-ray equipment especially suitable for veterinary work. The principal exhibit will be the model K5 portable X-ray unit for radiography and fluoroscopy. This comprises the X-ray tubehead, control panel, hand exposure-timer, fluoroscopic footswitch and radiographic cone, all packing into an attractive carrying case. The complete outfit weighs 56 lb.

Two tubestands for this unit will be shown. The ST14 tubestand is a three-piece demountable table-type stand providing all necessary angulating and positioning facilities for correct alignment of tube, object and film.

The ST15 tubestand is a more elaborate unit on a castored base, enabling it to be placed alongside the examination desk or table and operated over its entire length. The 69 in. height of the column affords ample focal-film distance above the table top and a crank-operated gear mechanism enables the tube head to be fixed at any required height. The elimination of a heavy counter-weighting device contributes greatly to the mobility and lightness in operation.

In addition to these exhibits, Newton Victor radiographic accessories will be shown, such as Varilume illuminators, cassettes, protective equipment, chemicals, etc.

Ortho Pharmaceutical, Ltd.

The company will exhibit the following developments of the Ortho Research Foundation, Division of Animal Industry :—

Dinovex oestrogenic solution, which provides a new approach to the treatment of functional sterility in cattle. Dinovex is a sterile, non-pyrogenic, non-toxic solution of dienoestrol in a water-soluble base. Injected subcutaneously at the onset of heat, Dinovex supplements ovarian oestrogen production during oestrus, inducing ovulation and *corpus luteum* formation. Field trials have demonstrated pleasing results without side effects and at low cost.

Vetrisul 3-Sulphonamide cream is an optimal association of sulphathiazole, n-acetylsulphanilamide and n-benzoylsulphanilamide, each exerting high bacteriostatic activity in its specific pH range. Vetrisul is thereby effective against a wider range of bacteria and under a wider variety of conditions than preparations containing one sulpha drug. The activity of Vetrisul is further enhanced by the addition of urea peroxide which effectively counteracts body fluids inhibiting sulphonamide activity. Vetrisul is indicated for prevention and treatment of secondary wound infections ; as a topical dressing for cuts, abrasions, wounds, scratches, and suture lines ; and bacterial infections of the vagina in cows, mares, etc.

Parke, Davis & Company, Limited

The stand gives a prominent display for the use of chloromycetin in both large- and small-animal practices, the products being available only to the veterinary profession.

Chloromycetin tincture is indicated in the treatment of ovine foot rot, orf, foul-of-the-foot, blackspot, venereal conditions of a granulomatous nature, and also in certain ear conditions. As an antiseptic it may be applied to wounds, contusions, bruises, and especially where pyogenic bacteria retard healing.

Chloromycetin intramuscular has proved invaluable in large- and small-animal practice since its broad spectrum, coupled with its rapid diffusion and deep tissue penetration, makes it invaluable in conditions of pneumonic, gastro-enteric and nephritic origin.

Chloromycetin capsules, 0·25 gm. and 0·05 gm., are intended for administration to large- and small-animal patients respectively. Where it is necessary to maintain adequate blood levels, following the intramuscular injection of chloromycetin, these capsules represent the most effective method of administering chloromycetin.

Chloromycetin palmitate has proved especially useful in cases of feline enteritis, feline influenza, and in calves its administration has been advocated in cases of white scours etc.

Chloromycetin Ophthalmic Ointment has proved invaluable in cases of keratitis, and in all ocular conditions where a prolonged action is required. Other exhibits include the range of Abidec, Benadryl and Caladryl products.

Petfoods Ltd.

Petfoods Ltd. (formerly Chappie Ltd.) makers of "Kit-e-Kat," "Lassie," "Chappie" and "Meet," are leaders in the field of tinned pet-food and have from the start considered it their duty to ensure that not only are their foods prepared under strict hygienic conditions but that they contain all those factors necessary for health and well-being.

Quality of raw materials and the retention of that quality in processing are the theme of this year's display.

A back-projection film unit showing films on whaling, "stills" depicting other sources of raw materials, and pictures of the Company's modern processing plant at Melton Mowbray provide an interesting glimpse behind the scenes of an industry which is contributing to the better health of cats and dogs.

Pfizer, Ltd.

The Pfizer stand features as its main theme the wide overall application of the broad-spectrum antibiotic Terramycin to veterinary medicine. The effectiveness of Terramycin dosage forms are graphically illustrated and many aspects of their application to veterinary medicine are shown.

The central display of the stand is an illustrated comparative antibiotic spectrum-chart. By means of an automatic switch-mechanism gear this chart illustrates the antibacterial range of Terramycin in comparison with other antibiotics.

The stand features the various dosage forms of Terramycin and illustrates the indications for which they can be used. Because of limited space it is not possible to represent pictorially all the applications of Terramycin in veterinary medicine, so one main aspect is featured—the treatment of mastitis with Terramycin intramammary animal formula.

In addition to the Terramycin range of preparations, the stand also features the various Cortril brand of hydrocortisone veterinary preparations.

Pfizer personnel will be in attendance on the stand during all the published hours of opening. They will be pleased to deal with enquiries and will see that those attending the conference are supplied with suitable literature concerning Pfizer products.

Reckitt & Colman Ltd. (Pharmaceutical Department)

Dettol. Dettol is efficient against a wide range of bacteria and its activity is well maintained in the presence of organic matter. It is well tolerated on the skin and mucous membranes. It is non-poisonous and non-staining.

Dettol antiseptic cream. An improved antiseptic hand cream containing parachlorometaxylenol incorporated in a non-ionic base, together with essential fats to replace those lost by normal washing with soap and water. It has a rapid action against a wide range of pathogenic micro-organisms with a persistence of effect. It is a useful antiseptic lubricant in parturition.

Instrument Dettol. For instrument disinfection. Instrument Dettol forms a clear solution in soft or distilled water. It is rapidly bactericidal against a wide range of pathogenic micro-organisms.

Dettol ointment incorporates the active principle of Dettol in a soothing and emollient base.

Surgical Dettol (Blue and Orange) is intended for pre-operative skin disinfection. It is rapidly bactericidal, virtual disinfection of the skin being achieved within one minute.

Disprin forms calcium acetylsalicylate in water. Disprin should be given as a draught, whenever aspirin is indicated. As it is soluble it is less likely to cause irritation of the gastric mucosa. Given as a draught it is palatable.

Codis. A tablet providing soluble aspirin together with codeine phosphate and phenacetin. The tablet disperses rapidly in water and is indicated in all those conditions for which Tab. Codein. Co. would normally be prescribed, with the added advantage of better toleration and rapid absorption.

Ward, Blenkinsop & Co. Ltd.

The Penotrane series is exhibited particularly emphasising:—

A new Penotrane pessary with stilboestrol for retained placentae and uterine discharge.

Penotrane intramammary cream—for streptococcal, staphylococcal and penicillin-resistant mastitis.

Penotrane dusting powder—the ideal antiseptic dry dressing with powerful insect-repellent properties.

Penotrane tincture—for cattle ringworm, wet eczema, orf and purulent otorrhoea.

Penotrane VMC—a simple, convenient and effective form of treating vaginitis, metritis and cervicitis.

Further products include :—

Pavacol—an effective and palatable papaverine-codeine cough syrup.

Noracin—a parenteral agent for controlling haemorrhage.

Prolugen—an effective glucogenic agent for acetonaemia in cattle and for pregnancy toxaemia in ewes.

Steramide-Ag. eye, ear and nose drops—for ocular infections, aural eczema, otitis external and nasal discharge.

Steravite eye ointment—which exhibits combined chemotherapeutic healing and anaesthetic properties for ocular infections and injuries.

Viacutan Alopecic cream—for suppressing infection and actively promoting the growth of hair in alopecia.

Viacutan cream and lotion—stimulating antiseptics with powerful penetrative properties.

Also exhibited are an hypodermic needle support and syringe stand.

Watson & Sons (Electro-Medical) Ltd.

Watson & Sons market a complete range of X-ray equipment embracing every need.

For the average practice the Watson portable X-ray unit Type MX-2 shown on the stand has proved to be adequate. It has an output of 80 kV., 15 mA., and will produce excellent radiographs of the smaller animals and of the extremities of horses and cattle. Fluorescent screen examinations can also be carried out in a darkened room.

The unit has a self-contained oil-immersed tube head which eliminates the use of high tension cables and is very robust and easily positioned. The mobile supporting stand can be dismantled in a few minutes for transport by car.

The control unit is simple to use and the complete apparatus is practically silent in operation. Maintenance costs are negligible, the X-ray tube having an extremely long life.

Willington Medicals Ltd.

The main feature of the stand will be the display of Steroid products. Cortone and hydrocortone products are already established as highly effective agents in the treatment of bovine ketosis, arthritis in dogs, horses and cattle, and inflammatory eye conditions in many animal species. Cortone has a marked anti-inflammatory action and will produce very good results in inflammatory eye diseases of an acute type. Hydrocortone acetate is used in intra-articular injection in horses and dogs in localised skin disorders.

A selective range of products will be displayed including Anaesleep Forte used for euthanasia, "Acramide" dusting powder in "puffer-squeeze" pack, and examples of their specialised service available for products packed with name-and-addressed labels. A portion of the stand will be displaying ethical veterinary products of Consolidated Chemicals Ltd. These formulations include Actos-A.C.T.H., Actos 12 (Vit.B.12) and Hepacon B Forte.

The staff of Willington Medicals will look forward to meeting old and new friends during Congress week.

Willows Francis, Ltd.

The Willows display this year features many recently introduced products, together with a range of established veterinary specialities. The focal point in the display includes Xylotox Veterinary, Venagmin—the original British parenteral haemostat—and the new product Soxamycin, the intramammary antibiotic which should attract considerable attention.

Another attraction is the Willows teat plug, attractively packed in handy boxes of 20—an entirely British-made item. Rumoxane, polymerised methyl silicone therapy for bloat, Kebovel, a propionate acetate product for basic and supplementary treatment of acetonaemia, and Sulphentrin, a mixed sulpha drug preparation in suspension for calf scours, dysentery and enteric infections are also featured.

Of particular interest is the new range of calcium borogluconate injections now being marketed by Willows under the name Boracalinate, and the two products from the well-known German manufacturer Bengen of Hanover (*a*) self-expanding test dilator, and (*b*) a new synthetic surgical suture in 50-metre balls attractively and aseptically packed. Both these items were introduced to the profession at the B.V.A. Congress in Northern Ireland last year and received immediate support.

The customary display of instruments, biologics and standard products completes the display. All visitors to the stand will receive the Congress note pad which has become a feature of the Willows exhibit in recent years.

John Wyeth & Brother, Ltd.

The main product featured on the stand this year is a penicillin injectable preparation that is unique—it need only be given in a single dose to build up an effective and prolonged blood level of penicillin. This product, "Penidural" All-Purpose Injectable, not only saves the veterinary surgeon time and effort in the treatment of so many everyday infections, but also provides a most economical form of therapy.

Each rubber-capped vial of "Penidural" All-Purpose injection contains 600,000 units benzathine penicillin, 300,000 units potassium penicillin G and 300,000 units procaine penicillin G. The injection may be prepared for immediate use simply by the addition of 1·5 c.c. water. The mainstay of this combination of penicillins is the benzathine penicillin component, which will maintain reliably effective penicillin levels for more than four days. Potassium penicillin will, of course, create high blood levels for the first four to six hours, whilst the procaine penicillin retains moderately high levels for the succeeding 18 to 24 hours.

A product featured for the first time is an anti-anxiety drug "Equanil" (meprobamate). Animal experimental studies gave the first clue to the great potential usefulness of this drug in the symptomatic management of many manifestations of the anxiety neuroses and allied conditions. The drug exhibited extremely low toxicity even in doses well above those necessary to produce a therapeutic response.

"Equanil" is now firmly established in human medicine and is well worthy of trial by veterinary surgeons in many of the conditions in which the barbiturates and anti-hysteria drugs have been used with limited success. "Equanil" is made available in the form of 400 mg. tablets.